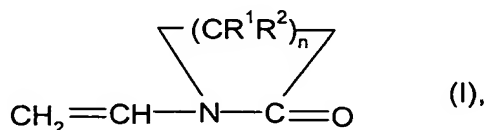


Claims

1. A process for preparing a water-in-water dispersion of polyvinyl lactam having a K value of ≥ 120 by free-radically initiated polymerization of at least one N-vinyl lactam of general formula I



where

R^1, R^2 independently of one another are hydrogen and/or $\text{C}_1\text{-C}_8$ alkyl, and n is an integer from 2 to 8,

in an aqueous reaction medium,

wherein said at least one N-vinyl lactam I used for the polymerization is composed of at least 50% by weight of N-vinyl-2-pyrrolidone (R^1 and R^2 as hydrogen, n as 3), the polymerization temperature is $\leq 70^\circ\text{C}$ and the free-radically initiated polymerization of said at least one N-vinyl lactam I takes place in the presence of

- from 1% to 100% by weight, based on the saturation amount in the aqueous reaction medium, of at least one organic or inorganic salt,
- from 0.1% to 30% by weight of at least one polymeric anionic dispersant, based on the total amount of said at least one N-vinyl lactam I used for the polymerization, and
- from 0.01% to 0.25% by weight of at least one free-radical initiator, based on the total amount of said at least one N-vinyl lactam I used for the polymerization,

and the reaction conditions are chosen so that during the polymerization reaction at least a portion of said at least one N-vinyl lactam I and of the polyvinyl lactam formed therefrom by polymerization are present in the form of a separate phase in the aqueous reaction medium.

- A process according to claim 1, wherein the polymerization is carried out using $\geq 20\%$ by weight of said at least one N-vinyl lactam I, based on the total amount of the resulting aqueous polyvinyl lactam dispersion.
- A process according to either of claims 1 and 2, wherein the polymerization takes place by the feed technique.

4. A process according to claim 3, wherein at least one portion of said at least one organic or inorganic salt and of said at least one polymeric anionic dispersant and if appropriate a portion of said at least one free-radical initiator and/or of said at least one N-vinyl lactam I are introduced as an initial charge in the aqueous reaction medium and under polymerization conditions the remainders if appropriate of said at least one organic or inorganic salt and of said at least one polymeric anionic dispersant and also the entirety or remainder if appropriate of said at least one free-radical initiator and/or of said at least one N-vinyl lactam I are metered in continuously.
5. A process according to any one of claims 1 to 4, wherein the entirety of said at least one N-vinyl lactam I is polymerized to a conversion of $\geq 90\%$ by weight.
6. A process according to claim 5, wherein the polymerization is completed by metering additionally from 0.05% to 1.5% by weight, based on the total amount of said at least one N-vinyl lactam I used for the polymerization, of at least one free-radical initiator into the polymerization mixture under polymerization conditions.
7. A process according to any one of claims 1 to 6, wherein said at least one N-vinyl lactam I used for the polymerization is exclusively N-vinyl-2-pyrrolidone.
8. A process according to any one of claims 1 to 7, wherein as said at least one polymeric anionic dispersant homopolymers or copolymers of ethylenically unsaturated carboxylic or sulfonic acids and also their corresponding salts are used.
9. A process according to any one of claims 1 to 8, wherein as said at least one salt the salt of an organic C₁ to C₁₅ carboxylic acid is used.
10. An aqueous polyvinyl lactam dispersion obtainable by a process according to any one of claims 1 to 9.
11. The use of an aqueous polyvinyl lactam dispersion according to claim 10 as a component in drug or cosmetic products, in adhesives, heat transfer fluids, in coating, thickener, adsorber, binder, laundry detergent, plastics, ceramics, refrigerant, ink or pigment formulations or in metal quenching baths.
12. A drug or cosmetic product, adhesive, heat transfer fluid, coating, thickener, adsorber, binder, laundry detergent, plastics, ceramics, refrigerant, ink or pigment formulation or metal quenching bath comprising at least one aqueous dispersion of polyvinyl lactam having a K value ≥ 120 and a polyvinyl lactam

content of $\geq 20\%$ by weight, based on the total amount of the aqueous polyvinylactam dispersion.

Process for preparing a water-in-water dispersion of polyvinylactam having a K value of ≥ 120

Abstract

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Process for preparing water-in-water dispersions of polyvinylactams having a K value of ≥ 120 by means of free-radically initiated polymerization.